

REMARKS

By this amendment, claims 1-17 have been amended. Accordingly, claims 1-17 are currently pending in the application, of which claims 1 and 6 are independent claims.

In view of the above amendments and the following Remarks, Applicants respectfully request reconsideration and timely withdrawal of the pending objections and rejections for the reasons discussed below.

*Rejections Under 35 U.S.C. §103*

Claims 1-5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U. S. Patent No. 6,268,841 issued to Cairns, *et al.* ("Cairns"). Applicant respectfully traverses this rejection for at least the following reasons.

Independent claim 1 (amended) recites:

“...  
a controller ... generating ... *digital gamma data having a plurality of gradation values*;  
...  
a column driver unit converting *the digital gamma data into an analog gradation voltage* ...”

Since the gamma data is digitally transferred from the controller to the column driver unit, “the number of wires mounted on a control board in a practical application can be significantly reduced” (Specification, page 8, lines 14-15). Also, “Since gamma data is transmitted to column driver ICs 14, and gradation voltage is generated at column driver ICs 14 by the value of gamma data and utilized in generating column signals, the value of gradation applied to the liquid crystal panel is more accurate than the case where the remotely transmitted

gradation voltage is applied, thereby obtaining a higher quality screen" (Specification, page 8, lines 15-19).

In this regard, in Figs. 5 and 7 of Cairns, the Gamma corrected reference voltages  $V(0:15)$  are provided to each column data driver 20 through the bus 24. As shown in Fig. 7, the reference voltages  $V(0:15)$  are provided to the column data driver 20 as analog signals. The column data driver 20 does not convert the reference voltages  $V(0:15)$  into an analog voltage. Since there is no digital data transmission between a controller and the column data driver 20, Cairns would suffer the problems of the prior art described in the background portion of the specification. Particularly, Cairns would require a lot of wires to transmit the reference voltages  $V(0:15)$ . Also, since the reference voltages  $V(0:15)$  are generated in the controller, which is provided in a separated board, the reference voltages would be degraded while being transmitted to the wires.

As such, Cairns fails to disclose or suggest "a controller ... generating ... digital gamma data having a plurality of gradation values" and "a column driver unit converting the digital gamma data into an analog gradation voltage ...". No second reference has been introduced to cure the deficiency from Cairns.

Thus, it is submitted that claim 1 is patentable over Cairns. Claims 2-5 that are dependent from claim 1 would be also patentable at least for the same reason. Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. §103(a) rejection of claims 1-5.

Claims 6-17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Cairns in view of Applicant Admitted Prior Art (AAPA), and further in view of U. S. Patent No. 6,480,180 to Moon ("Moon"). This rejection is respectfully traversed.

Independent claim 6 recites:

“a controller generating ... digital gamma data having a plurality of gradation values ...;  
...  
a column driver unit ... converting the digital gamma data into an analog gradation voltage ...”

As previously mentioned, Cairns fails to disclose or suggest this claimed features. Also, neither AAPA nor Moon discloses or suggests this claimed feature. In AAPA, a plurality of gradation values are transmitted via a plurality of wires and there is no digital data transmission between the controller and the column driver unit. Moon discloses transmitting data in a low-voltage differential signal format but does not disclose or suggest the digital data transmission of gamma signal between a controller and a column driver IC. None of the cited references discloses or suggests these claimed features, and, hence, the claimed invention would not have been obviously derived from combining the teachings of the cited references.

Thus, it is submitted that independent claim 6 is patentable over the cited references. Claims 7-17 that are dependent from claim 6 would be also patentable at least for the same reasons. Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. §103(a) rejection of claims 6-17.

#### ***Other Matters***

In this response, claims 1-17 have been amended to correct the informalities therein (e.g., antecedent basis issues), clarification (e.g., confusing recitations) and better wording. No amendment has been made to narrow the claim scope in order to avoid the cited references

because, as explained above, the invention defined in claim 1 and 6 are believed to be patentable over the cited references.

**CONCLUSION**

Applicant believes that a full and complete response has been made to the pending Office Action and respectfully submit that all of the stated grounds for rejection have been overcome or rendered moot. Accordingly, Applicant respectfully submits that all pending claims are allowable and that the application is in condition for allowance.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact the Applicant's undersigned representative at the number below to expedite prosecution.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,



Hae-Chan Park  
Reg. No. 50,114

Date: April 29, 2004

**McGuireWoods LLP**  
1750 Tysons Boulevard  
Suite 1800  
McLean, VA 22102-4215  
Tel: 703-712-5365  
Fax: 703-712-5280  
HCP:WSC/tmk

\COM\388926.1